IN THE UNITED STATES DISTRICT COURT FOR THE WESTERN DISTRICT OF TEXAS AUSTIN DIVISION

R2 SOLUTIONS LLC,	§
Plaintiff	§
	§
v.	§ Case No. 1:23-CV-01205-RP
	§
CLOUDERA, INC.	§ JURY TRIAL DEMANDED
Defendant.	§
Defendant.	§
	§

DEFENDANT CLOUDERA, INC.'S MOTION TO DISMISS PLAINTIFF'S COMPLAINT PURSUANT TO FED R. CIV. P. 12(b)(6)

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I. INTRODUCTION

R2's complaint fails to state a claim for patent infringement for multiple reasons.

First, R2's direct infringement allegations based on Cloudera "making, offering to sell, [or] selling," the Accused Instrumentalities is baseless. Dkt. 1 ("Compl.") ¶ 37. All asserted claims (1-32) of U.S. Patent No. 8,190,610 ("the '610 patent") require hardware—a distributed computing system¹—but Cloudera only makes and sells software. Cloudera therefore cannot infringe by making, offering for sale, or selling the Accused Instrumentalities. Moreover, claim 1 (the only claim for which R2 provides a claim chart) is a method claim, and it is black letter law that "a party that sells or offers to sell software containing instructions to perform a patented method does not infringe the patent under § 271(a)." Ricoh Co., Ltd. v. Quanta Comput., Inc., 550 F.3d 1325, 1335 (Fed. Cir. 2008). R2's direct infringement claims based on making, offering for sale, or selling the Accused Instrumentalities are not just implausible, they are impossible.

Second, R2's indirect infringement allegations, based entirely on Cloudera allegedly inducing the infringement of its "customers and end users," Compl. ¶¶ 40-45, fail because R2 has not even attempted to plead direct infringement by Cloudera's customers and end users. R2 only relies on its attached claim chart to plead that Cloudera—and not its customers—directly infringe. Compl. Ex. 2 at 2, 4. Nowhere does the complaint or attached chart identify any allegedly infringing Cloudera customer or explain how any customer infringes.

Third, all of R2's direct and indirect infringement allegations fail because R2 has failed to identify two different material elements of the claims: (1) mapping and reducing data of two

¹ R2 asserts two independent claims: claim 1 requires that "the mapping and reducing operations are performed by a distributed system," and claim 17 requires a "computer system including a plurality of computing devices" and a "processor and memory" that perform the recited functions. Compl. Ex. 1 ("610 patent"), claims 1, 17. While R2 does not assert claims 33-46, Compl. ¶ 37, the same holds true for these claims, as independent claims 33 and 40 have limitations corresponding to those in claims 1 and 17, respectively.

different data groups that each have different schema; and (2) a distributed computing system that performs the claimed operations in its allegations. R2 touts the first material element as the "improvement to existing MapReduce systems," Compl. ¶ 16, and the second material element was added during prosecution to overcome the examiner's rejections, *see infra* Section II.B. R2 has failed to identify either element in the Accused Instrumentalities.

Fourth, the '610 patent is ineligible under 35 U.S.C. § 101 because it claims the abstract idea of treating input data in the known MapReduce methodology as a multiple grouped sets. The additional elements of mapping and reducing "by a distributed system" fail to confer eligibility.

II. BACKGROUND

A. The '610 Patent

The '610 patent discloses using MapReduce "for distributed database processing." Compl. Ex. 1 ("'610 patent"), Title. MapReduce was a known "programming methodology" disclosed well before the '610 patent by Jeffrey Dean in the early days of Google. *Id.*, 1:6-16. MapReduce was known for "perform[ing] parallel computations over distributed (typically, very large) data sets." *Id.*, 1:6-8, 3:9-12. According to the specification, conventional MapReduce used "user-provided" map and reduce functions to perform computations on data. *Id.*, 1:5-27; *see id.*, 6:8-10.

Figures 1 and 2 show what the '610 patent calls "conventional MapReduce." *Id.*, 2:9-3:18, Figs. 1, 2. As shown in Figure 1, conventional MapReduce partitioned input data into groups (102(1) through 102(7)). *Id.*, 2:21-35, Fig. 1. Each partition (102) was given to a particular map function (104) to generate intermediate data (106). *Id.* The intermediate data (106) included key values (k1 through k5). *See id.* (group 106(3) with key k1, and 106(6) with key k4). MapReduce could group intermediate data (106) by key (110) before reducing the data by reducers (112). *Id.*, 2:36-51, Fig. 1. The individual reduce tasks (110) reduced the intermediate data by key. *Id.* (110(k1) through 110 (k5)). Output data groups 114 were then generated. *Id.*

Despite "conventional" MapReduce partitioning input data and grouping by key, the patent's alleged improvement was characterizing the input data "as a plurality of grouped sets of key/value pairs." *Id.*, Abstract, 1:31-36, 1:66-2:8. "[D]ata sets within the same group are characterized by the same schema; and data sets within different groups are characterized by different schemas." *Id.*, 3:50-57. Figure 3 provides an example of different "schema," showing tables having two distinct columns (e.g., "EmpName" in Employee table 302, and "DeptName" in Department table 304). *Id.*, 3:18-34. Claim 1 recites a partitioning step, providing data to a mapping function, and a reducing step, "wherein the mapping and reducing operations are performed by a distributed system." *Id.*, 8:60-9:19.

The Eastern District of Texas has construed terms in the '610 patent in two other cases. In the first, the court construed "a plurality of mapping functions that are each user-configurable" to mean "two or more mapping functions that are each configurable by a user," and "data group" to mean "a group of data and a mechanism for identifying data from that group." Ex. A, 13-25. The independent claim preambles were also found limiting. *Id.*, 19-22. In the second case, the court adopted R2's proposals and accorded all disputed terms their plain meaning. Ex. B, 10-19.

B. '610 Patent Prosecution History²

The examiner rejected the claims under 35 U.S.C. § 101 three times, all before the Supreme Court's decision in *Alice Corp. Pty., Ltd. v. CLS Bank Int'l*, 573 U.S. 208 (2014). Ex. C at 68, 149-50, 193-94. The examiner rejected the method claims under § 101 because they were not tied to a machine. *Id.* at 68. The applicant amended the preamble to require that the method is performed "over a distributed system." *Id.* at 130, 141. But the examiner rejected the method claims again,

² Cloudera requests that the Court take judicial notice of the prosecution file history. *See Vervain LLC v. Micron Tech., Inc.*, No. 6:21-cv-00487-ADA, 2022 WL 23469, at *5 & n.2 (W.D. Tex. Jan. 3, 2022) (collecting cases and holding that courts may take judicial notice of the prosecution history).

finding that "the *steps* of the method claim are still not tied to a machine." *Id.* at 149 (emphasis added). Instead, the claims were "purely mental steps." *Id.* at 150. The applicant finally overcame the rejection by amending the claims to require "the mapping and reducing operations [to be] performed by *a distributed system.*" *Id.* at 171 (emphasis added). The examiner also rejected the system claims under § 101. *Id.* at 193-94. Using pre-*Alice* § 101 strategies, the applicant overcame the rejection by amending the claims to recite that "the computer system comprises at least one processor and memory that are operable to perform" the operations listed in the claims. *Id.* at 213.

C. R2's Allegations

This is R2's twentieth case asserting the '610 patent. Previous defendants included brick and mortar retailers (e.g., Target), financial institutions (e.g., JPMorgan), logistics companies (e.g., FedEx), internet companies (e.g., Expedia), and hardware and software manufacturers (e.g., Deezer). Here, as in previous cases, R2 provides a claim chart purporting to "detail[] how Cloudera infringes the '610 patent." Compl. ¶ 38 Ex. 2; see Exs. D-H (charts from previous cases). Most material cited in the chart comes not from Cloudera but from other entities, such as Apache (an open source software foundation), Wikipedia, and third party websites. See Compl. Ex. 2 at 4-6. R2 likewise propounded generalist theories against previous defendants. See Exs. D-H.

III. LEGAL STANDARD

To survive a motion to dismiss, "a complaint must contain sufficient factual matter, accepted as true, to 'state a claim to relief that is plausible on its face." *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009) (quoting *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 570 (2007)); *see* Fed. R. Civ. P. 12(b)(6). The Court need not accept "conclusory allegations, unwarranted factual inferences, or legal conclusions." *Plotkin v. IP Axess Inc.*, 407 F.3d 690, 696 (5th Cir. 2005). "[F]actual allegations [that] are actually *inconsistent* with and contradict infringement" are insufficient to state a plausible claim. *Bot M8 LLC v. Sony Corp. of Am.*, 4 F.4th 1342, 1354 (Fed. Cir. 2021).

IV. ARGUMENT

A. R2's Direct Infringement Allegations Based on Cloudera Making, Offering for Sale, or Selling Software Should Be Dismissed Because All Claims Require Hardware

R2's direct infringement allegations based on Cloudera "making, offering to sell, [or] selling," the Accused Instrumentalities, Compl. ¶ 37, are foreclosed by precedent. R2 defines the "Accused Instrumentalities" as a series of Cloudera platforms and "any other platform(s)" that utilize one or more Apache open source software packages. *Id.* ¶ 7. There can be no dispute that all of these Accused Instrumentalities are software. Nor can there be any dispute that Cloudera does not make, offer for sale, or sell any hardware, let alone a distributed computing system.

Federal Circuit precedent squarely forecloses R2's allegations under these uncontestable facts. As to method claim 1, the only claim that R2 charts, making or selling software does not infringe a method claim under § 271(a). See Ricoh, 550 F.3d at 1335 ("[A] party that sells or offers to sell software containing instructions to perform a patented method does not infringe the patent under § 271(a)."). But the same holds true for all claims 1-46 because they all require a distributed computing system and "[m]erely providing software for a customer to use does not constitute direct infringement of a patent that requires a combination of both software and hardware." CTD Networks, LLC v. Google, LLC, No. WA-22-cv-01042-XR, 2023 WL 5417139, at *6-7 (W.D. Tex. Aug. 22, 2023) (dismissing plaintiff's direct infringement claims against a software provider where the asserted claims required hardware) (citing Centillion Data Sys., LLC v. Qwest Commc'ns Int'l, Inc., 631 F.3d 1279, 1288 (Fed. Cir. 2011)). R2's direct infringement claims based on making, offering to sell, or selling the Accused Instrumentalities should therefore be dismissed.

B. R2's Induced Infringement Allegations Should Be Dismissed Because R2 Does Not Identify Any Instance of Direct Infringement by Cloudera's "[C]ustomers and [E]nd [U]sers"

R2's inducement allegations fail because R2 has not properly pleaded direct infringement

by any Cloudera customer or end user. For inducement, R2 must properly plead direct infringement by Cloudera's customers or end users. *See Golden v. Qualcomm Inc.*, No. 2023-1818, 2023 WL 6561044, at *3 (Fed. Cir. Oct. 10, 2023) ("Because Golden has failed to adequately plead direct infringement by Qualcomm or its customers in this case, his complaint also fails to sufficiently plead contributory or induced infringement."); *Textile Comput. Sys., Inc. v. Broadway Nat'l Bank*, 620 F. Supp. 3d 557, 564 (W.D. Tex. 2022) ("To state a claim for induced infringement, [plaintiff] must first identify an act of direct infringement.").

R2 vaguely alleges that Cloudera "induce[s] direct infringement by its customers and end users." Compl. ¶ 40. But R2 provides *no* analysis purporting to show that or how Cloudera's customers or users directly infringe. R2's remaining allegations only relate to whether Cloudera knew of the '610 patent or provided instructions to its customers. Compl. ¶ 41-45. The same is true of R2's claim chart, which R2 asserts provides "exemplary instructions and documentation that explain how to implement and operate the Accused Instrumentalities in an infringing manner." Compl. ¶ 45. R2 does not rely on this chart to show infringement by Cloudera's customers or users. *See* Compl. Ex. 2. Nor could it, as the claim chart only purports to establish Cloudera's direct infringement. *See id.* at 2, 4. There is simply no reference to any actions performed by any customer or end user, which is insufficient. *Golden*, 2023 WL 6561044, at *3.

R2's pleading is especially deficient because claim 1, the only claim charted, is a method claim. It "is axiomatic that a method claim is directly infringed only if each step of the claimed method is performed." *Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318, 1328 (Fed. Cir. 2008); see also Limelight Networks, Inc. v. Akamai Techs., Inc., 572 U.S. 915, 921 (2014) ("A method patent claim[] . . . is not infringed unless all the steps are carried out."). Thus, to properly plead direct infringement of the method claim, R2 needed to plead performance of the method steps by

the customers or end users. R2 did not, so its induced infringement claim should be dismissed.

C. All of R2's Direct and Indirect Infringement Allegations Should Be Dismissed Because R2 Fails to Identify Material Claim Elements

All of R2's infringement claims should be dismissed because R2 fails to identify two separate material claim elements. "[A] plaintiff must plead facts that plausibly suggest that the accused product meets each limitation of the asserted claim or claims." *AK Meeting IP LLC v. Zoho Corp.*, No. 1:22-cv-1165-LY, 2023 WL 1787303, at *3 (W.D. Tex. Feb. 6, 2023), *adopting report & recommendation*, 2023 WL 3035436 (W.D. Tex. Mar 1, 2023). Moreover, to plead infringement of a "material" element, the complaint must do more than "attaching photos of the Accused Products and summarily alleging that" the element is satisfied. *Vervain*, 2022 WL 23469, at *5. Courts in this district routinely dismiss complaints that fail to identify material elements.³

i. R2 Fails to Identify Mapping and Reducing Data of Two Different Data Groups That Each Have Different Schema

All claims require mapping and reducing data of two data groups where, "the data of a first data group has a different schema than the data of a second data group." '610 patent, claims 1, 17, 33, 40. R2 concedes that this is a material element by alleging that allowing "mapping and reducing functions [to] be applied to data from heterogenous data sources (i.e., data sources having different schema) to accomplish the merger of heterogeneous data" was a "technological improvement to existing MapReduce." Compl. ¶ 16. But R2 does not identify a process by which the mapping and

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³ E.g., Ortiz & Assocs. Consulting, LLC v. Ricoh USA, Inc., No. 6:21-cv-01178-ADA, 2023 WL 2904583 at *4 (W.D. Tex. Apr. 11, 2023) (granting motion to dismiss where plaintiff "fail[ed] to identify an essential element in the claim chart—the server"); Grecia Estate Holdings LLC v. Meta Platforms, Inc., 605 F. Supp. 3d 905, 915-17 (W.D. Tex. 2022) (granting motion to dismiss where plaintiff failed to identify "encrypted digital media" required of the asserted claim); Vervain, 2022 WL 23469, at *5 (granting motion to dismiss where plaintiff "failed to plausibly allege infringement of the hot blocks limitations," which were "material to practicing the asserted claim"); De La Vega v. Microsoft Corp., No. W-19-CV-00612-ADA, 2020 WL 3528411, at *6–7 (W.D. Tex. Feb. 11, 2020) (granting motion to dismiss where plaintiff failed to explain "how the accused instrumentalities [met] the 'coupling' limitation").

reducing functions are applied to data of two data groups having different schema.

R2 begins its analysis of this element by stating twice that "the data of the first data group *can* have a different schema than the data of the second data group." Compl. Ex. 2 at 47-48 (emphasis added). This statement of *capability* fails to plead infringement of claim 1 because R2 must allege that the method steps are *actually performed*. *See Muniauction*, 532 F.3d at 1328.

The rest of R2's analysis fares no better. R2 never identifies actual performance of mapping and reducing operations on two data groups having different schema. *See id.* R2 points to Hive generic functionality that shows joins of multiple tables (Compl. Ex. 2 at 51-52), but nothing in these screen shots explains that the tables being joined have different schema. Likewise, R2 points to generic Spark functionality that explains Spark works with data that "has a *schema*" (*id.* at 53-55), but nothing identifies performing mapping and reducing operations on data groups with two *different* schema. And, just because R2 points to a screenshot explaining that Spark works with files of different formats, (*id.* at 54), nothing in here identifies actual performance of mapping and reducing operations on two groups of data having different formats. Indeed, in the following slides, R2 appears to rely on an application of Spark using files having the same schema. *Id.* at 56-57.

Finally, R2 identifies Apache Impala functionality, stating that "Impala can join tables of different file formats." *Id.* at 59-60. But that suffers from the same deficiency as R2's initial allegations—it only mentions capability, not actual performance of the method steps. To plead infringement of its method claim, R2 must allege that the claimed steps are actually performed. *See Muniauction*, 532 F.3d at 1328. It failed to do so, and so its complaint should be dismissed.

ii. R2 Fails to Identify a Distributed Computing System That Performs the Claimed Operations

All claims require a distributed computing system that performs the claimed operations.

The method claims require that "the mapping and reducing operations are performed by a

distributed system." '610 patent, claims 1, 33. Likewise, the system claims require a "computer system" with "at least one processor and memory that are operable to perform the [claimed] operations." *Id.*, claims 17, 40. As discussed above, these limitations are material because they were added during prosecution to overcome the examiner's rejections. *See supra* Section II.B. R2 does not identify the distributed computing system, let alone explain whether "the mapping and reducing operations are performed by [the] distributed system" when mapping claim 1.

R2's allegations for this limitation span the last four pages of its claim chart. Compl. Ex. 2 at 73-76. These pages do not show a distributed system that performs the mapping and reducing operations. The first page discusses "Apache Hadoop . . . modules" that undisputedly refer to software. *Id.* at 73. And while R2's excerpt references "commodity machines," it does not explain what those machines are, and critically, it only alleges that the commodity machines "store[] data." *Id.* R2 does not allege that those machines perform the mapping and reducing operations.

The second page discusses "Apache Hive" and the "Hive data warehouse software"—also undisputedly software. *Id.* at 74. While the excerpt also vaguely references a "Hadoop cluster," R2 does not identify what machines make up this cluster. *Id.* And nowhere does R2 allege that those machines are performing the mapping and reducing operations of the claims. Instead, at best, the excerpt vaguely asserts that the cluster executes "a series of jobs." *Id.*

The third page discusses "Resilient Distributed Datasets (RDDs)." *Id.* at 75. But R2 elsewhere identifies RDDs as "data groups." *Id.* at 18. This is inconsistent with any allegation that the RDDs constitute the distributed computing system, and "[w]here . . . the factual allegations are actually *inconsistent* with and contradict infringement, they are likewise insufficient to state a plausible claim." *Bot M8*, 4 F.4th at 1354. This excerpt vaguely references "nodes of the cluster" but, like the first page, only describes these nodes as storing data (i.e., RDDs). *Id.* at 75.

The fourth page discusses the "Impala Server," which is software. *Id.* at 76. As R2 explains, the Impala Server "consists of different daemon *processes*." *Id.* (emphasis added). While this page vaguely references "hosts within your CDH cluster," R2 again does not even attempt to explain if or how the cluster performs the mapping and reducing operations, as claimed. *Id.*

Nor do R2's blanket assertions at the top of these four pages that "[i]n each of the Accused Instrumentalities the mapping and reducing operations are performed by a distributed system," *id.* at 73-76, adequately support a claim for relief. "[A] plaintiff cannot assert a plausible claim for infringement under the *Iqbal/Twombly* standard by reciting the claim elements and merely concluding that the accused product has those elements. There must be some factual allegations that, when taken as true, articulate why it is plausible that the accused product infringes the patent claim." *Bot M8*, 4 F.4th at 1353. R2's complaint should therefore be dismissed for failing to identify a distributed computing system that performs the claimed operations.

D. The Claims of the '610 Patent Are Ineligible Under 35 U.S.C. § 101

Patent eligibility under 35 U.S.C. § 101 "may be, and frequently has been" resolved on motions to dismiss. *SAP Am., Inc. v. Investpic, LLC*, 898 F.3d 1161, 1166 (Fed. Cir. 2018). A claim is ineligible when it (1) is directed to an abstract idea; and (2) fails to recite significantly more than the abstract idea. *Id.* (citing *Alice*, 573 U.S. at 217-18). At step one, "methods which can be performed mentally, or which are the equivalent of human mental work, are unpatentable abstract ideas." *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1371 (Fed. Cir. 2011). So are claims that focus on "collecting information, analyzing it, and displaying certain results." *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016). At step two, the additional elements must be "more than 'well-understood, routine, conventional activity." *Intell. Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017) (cleaned up).

Under Alice step one, the claims of the '610 patent are directed to the abstract idea of

treating input data in MapReduce as a plurality of grouped sets. This corresponds with the description of the purported invention: "[a]n input data set is treated as a plurality of grouped sets of key/value pairs, which enhances the utility of the MapReduce programming methodology." '610 patent, Abstract, 1:31-44 (same), 1:66-2:11 (same), 3:48-64. This abstract idea is nothing more than: (1) classifying and organizing data; (2) using known data processing methods to manipulate data of a particular type; and (3) capturing a human-practicable activity. The addition of generic computer elements, such as a "distributed system," fails to transform the claims into something more than an abstract idea under *Alice* step two.

i. Claim 1 Is Representative of the Claims

For eligibility purposes, claim 1 is representative. R2 even treats claim 1 as representative, arguing that the "solution is embodied, for example, in Claim 1 of the '610 patent," and "[t]he concept of 'data groups' as found in Claim 1 of the '610 patent in the context of MapReduce attains a novel and technological improvement in computer capabilities." Compl. ¶¶ 18-19.

Claim 1's representative features include (1) "processing . . . a plurality of data groups," (2) where "a first data group has a different schema than . . . a second data group," (3) "partitioning the . . . data groups into a plurality of data partitions," (4) "providing each data partition to a . . . mapping function[]" that is "user-configurable" and "independently output[ing] . . . values for each of a set of keys" to form (5) "corresponding intermediate data for that data group and identifiable to that data group," (6) "reducing [] intermediate data for the data groups . . . , including processing the intermediate data for each data group in a manner that is defined to correspond to that data group, so as to result in a merging of the corresponding different intermediate data based on [a] key in common," and (7) performing the mapping and reducing operations "by a distributed system." The patent concedes that the partitioning, mapping, reducing, and processing by a distributed system were all conventional activities in MapReduce. See '610 patent, 1:5-27, 2:9-

3:18, Figs. 1, 2. The purported enhancement is simply a characterization of data as "data groups" having different schema. *Id.*, Abstract, 1:31-44, 1:66-2:11, 3:48-64.

Claims 2-46 add nothing to claim 1's abstract idea and do not require separate treatment. See Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n, 776 F.3d 1343, 1348 (Fed. Cir. 2014) (analyzing one representative claim is appropriate where others "are substantially similar [and] recite little more than the same abstract idea"). Independent claims 17, 33, and 40 mirror claim 1, adding that the "computer system" includes a "processor and memory" and that "data set[s]" belong to "data group[s]." These are not meaningful additions.

The dependent claims do not depart from the abstract idea. Claims 2 and 18 require "a plurality" of output data groups. This does nothing for eligibility and was conventional in MapReduce. '610 patent, 2:39-43 ("[G]enerat[ing] the corresponding output partitions 114(k1) to 114(k5)."), Fig. 1 (Output 114(k1)-114(k5)); *Semantic Search Techs. LLC v. Aldo U.S., Inc.*, 425 F. Supp. 3d 758, 774 (E.D. Tex. 2019) ("Plaintiff acknowledges it did not invent th[is] [feature].").

Claims 3, 4, 9-11, 19, 20, 26-28, 37-39, and 44-46 introduce "metadata" associated with intermediate data. But the ancillary "collect[ing] [of] information about the data that the[] [system is] processing," as the specification describes for this metadata ('610 patent, 5:19-20), is not a patent-eligible improvement. *See Intell. Ventures I LLC v. Erie Indem. Co.*, 850 F.3d 1315, 1329 (Fed. Cir. 2017) (using "metafiles" to locate or associate tags with data "do[es] not transform the claim into something beyond a conventional computer practice for facilitating searches [for data]"). Nor does adding metadata alter the abstract idea of claim 1.

Claims 5, 11, 12, 16, 21, 22, 28, 32, 34, and 41 introduce a reducing "iterator" that "merg[es]" and "relat[es]" data. But the patent again concedes that conventional reduce functions utilize "iterator[s]" and "combine elements as specified by the reduce function." '610 patent,

1:17-27, 2:49-51; *Semantic*, 425 F. Supp. 3d at 774. Making these reducers specific to "data groups" maintains the same abstract idea of claim 1 (i.e., treating data as grouped sets). Use of iterators is also an abstract idea. *Snowcast Sols. LLC v. Endurance Specialty Holdings, Ltd.*, No. 15 CV 5305, 2016 WL 1161299, at *4 (N.D. Ill. Mar. 23, 2016) ("[I]terative" (i.e., repetitive) calculations merely employ a computer 'for its most basic function.") (citations omitted). So is combining data. *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014) ("[T]aking two data sets and combining them into a single data set" is abstract).

Claims 6-8, 23-25, 35-37, and 42-44 include "partition[ing] the intermediate data." This was conventional in MapReduce. '610 patent, 2:36-43 ("The group-by-key functionality 108 partitions the intermediate results by out_key, and the intermediate partitions 110(k1) to 110(k5) are provided to the corresponding reduce functions."); *Semantic*, 425 F. Supp. 3d at 774. Specifying how data is to be partitioned and provided to reducers according to data groups again applies the representative abstract idea (i.e., treating data as grouped sets) to the reducing. Partitioning data is also abstract. *Device Enhancement LLC. v. Amazon.com, Inc.*, 189 F. Supp. 3d 392, 403-05 (D. Del. 2016) ("[U]sing [a] distributed architecture to increase the capabilities of individual devices by using remote resources" by "dynamically splitting... tasks" is abstract).

Claims 13-15 and 29-31 recite reducing data that is "not intermediate data," including processing data from other reducers. But shuffling of information between tasks is just another subsidiary abstract concept. *RecogniCorp, LLC v. Nintendo Co., Ltd.*, 855 F.3d 1322, 1327 (Fed. Cir. 2017) ("Adding one abstract idea . . . to another abstract idea . . . does not render the claim non-abstract."). So is combining data from different sources. *Digitech*, 758 F.3d at 1351; *Elec. Power Grp.*, 830 F.3d at 1352. Claim 1 is therefore representative.

ii. Claim 1 Involves Nothing More Than Classifying and Organizing Data

Treating input data as a plurality of grouped sets falls within the familiar category of

classifying and organizing data, which is an abstract idea. As explained above, conventional MapReduce utilized groups of data. MapReduce could partition input data into groups 102(1) through 102(7) before passing these groups to particular map functions 104(1) through 104(7). '610 patent, 2:21-35, Figs. 1, 2. The intermediate data produced by the map functions resulted in more groups of data 106(1)-106(7). *Id.* The intermediate data was then regrouped by key (e.g., "Group-by-Key" function (108)) before the reducing. *Id.*, 2:36-51, Fig. 1. Reducers 112(k1) through 112(k5) then output additional groups in output data groups 114(k1) through 114(k2). *Id.*

According to the '610 patent, the purported breakthrough adds more groups of data to MapReduce: "an input data set is treated as a plurality of grouped sets of key/value pairs." *Id.*, 1:31-33. Data sets within each data group "are characterized by the same schema," while data sets within different groups "are characterized by different schemas." *Id.*, Abstract, 1:31-45, 1:66-2:8, 3:48-57, 3:65-4:3. During the mapping and reducing, "records of the intermediate data . . . retain an identification with the groups of the original input data." *Id.*, 4:4-22.

This type of data classification and organization has consistently been found abstract. *E.g.*, *Erie*, 850 F.3d at 1327 (creating an index that includes "tags and metafiles" to search and retrieve data is abstract "collect[ing], classify[ing], or otherwise filter[ing] data"); *In re TLI Commc'ns LLC Pat. Litig.*, 823 F.3d 607, 613 (Fed. Cir. 2016) (storing images based on classification is "a well-established 'basic concept' sufficient to fall under *Alice* step 1") (cleaned up). Indeed, the Federal Circuit in *Digitech* held that "[d]ata in its ethereal, non-physical form is simply information that does not fall under any of the categories of eligible subject matter under section 101." 758 F.3d at 1350-51. Taking an existing data processing method that already groups data and drawing additional boundaries around other data, as claim 1 recites, is not patentable.

That "data group" has been previously construed does not rescue the claims; it only

emphasizes the abstract "enhancement" proposed by the patent. In two prior cases, "data group" was construed to mean "a group of data and a mechanism for identifying data from that group." Ex. A at 23-25; Ex. B at 8. The district court found that "the word 'group' inherently implies some mechanism to identify the group," such as an "identifier" for the data. Ex. A at 24-25 (citing '610 patent, 3:58-64, 3:65-4:18). But using a mechanism to identify data is an abstract concept that is commonly utilized to track and process data. E.g., PersonalWeb Techs. LLC v. Google LLC, 8 F.4th 1310, 1316-17 (Fed. Cir. 2021) (using a "content-based identifier" to "perform the claimed data-management functions" is abstract); Erie, 850 F.3d at 1326 (using "category' tags" for "grouping of similar terms" and "domain' tags" for "grouping of similar categories" is abstract); Intell. Ventures I LLC v. Symantec Corp., 838 F.3d 1307, 1313 (Fed. Cir. 2016) ("[R]eceiving email (and other data file) identifiers, characterizing e-mail based on the identifiers, and communicating the characterization—in other words, filtering files/e-mail—is an abstract idea."); Secured Mail Sols. LLC v. Universal Wilde, Inc., 873 F.3d 905, 910 (Fed. Cir. 2017) ("The fact that an identifier can be used to make a process more efficient . . . does not necessarily render an abstract idea less abstract."); Realtime Data LLC v. Array Networks Inc., No. 2021-2251, 2023 WL 4924814, at *9 (Fed. Cir. Aug. 2, 2023) ("Requiring [data] compression to be done using an identifier or data descriptor does not make the claims less abstract.") (citations omitted).

The patent does not purport to create a new type of identifier or "mechanism" to track data, it only applies conventional encoding to track groups of data through map and reduce tasks. *See* '610 patent, 4:36-55 (providing syntax for identifier "group_id"), 6:28-48 (listing pseudo code identifying "emp" and "dept" as input data groups), Fig. 3 (tracking "emp" and "dept"). The patent concedes this encoding is done by the user for each use case, as the map and reduce functions are "user-provided" and written to process particular data. *Id.*, 1:17-27 ("The 'map' and 'reduce'

functions are typically user-provided."), 2:19-35 ("The programmer specifies a map function that processes input key/value pairs."), 4:39-40 ("As discussed above, a user/programmer typically provides map and reduce functions."). To the extent it is argued the identifier is otherwise generated by the system, this is equally abstract. *See, e.g., PersonalWeb*, 8 F.4th at 1316 ("Generating such identifiers via a known algorithm is no less abstract.").

iii. Claim 1 Uses a Known Algorithm to Manipulate Particular Data

Defining input data for a known data processing algorithm in MapReduce, which the patent concedes is *the* enhancement, is likewise abstract. Claim 1 recites, for example, processing data of a data set that "comprises a plurality of data groups," where "the data of a first data group has a different schema than the data of a second data group." This is just abstract line-drawing around input data for subsequent processing. *See, e.g., Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Canada (U.S.)* 687 F.3d 1266, 1280 (Fed. Cir. 2012) ("[T]he determination of [input] values [for an algorithm], and their subsequent manipulation, is a matter of mere mathematical computation."); *RecogniCorp*, 855 F.3d at 1327 (a process "whereby a user starts with data, codes that data using 'at least one multiplication operation,' and ends with a new form of data," is abstract); *SAP*, 898 F.3d at 1168 (Fed. Cir. 2018) ("[E]ven if a process of collecting and analyzing information is 'limited to particular content' or a particular 'source,' that limitation does not make the collection and analysis other than abstract.") (quoting *Elec. Pwr. Grp.*, 830 F.3d at 1353, 1355).

Maintaining the claimed data characterization through the map and reduce steps is likewise abstract. Claim 1 recites mapping the input data groups to form "corresponding intermediate data for that data group and identifiable to that data group." The reducers "process[] the intermediate data for each data group in a manner that is defined to correspond to that data group, so as to result in a merging of the corresponding different intermediate data." For the map functions, processing a group of data to create another group of data that is identifiable to the initial group is simply

tracking data, which is a familiar abstract concept. Cyberfone Sys., LLC v. CNN Interactive Grp., Inc., 558 F. App'x 988, 992 (Fed. Cir. 2014) ("[T]he idea of collecting information in classified form, then separating and transmitting that information according to its classification, is an abstract idea that is not patent-eligible."); TLI, 823 F.3d at 610-12 (classifying data "in such way that the information [] may be easily tracked" is abstract). The same is true for the reducing. Indeed, the processing required during the reducing (i.e., "in a manner that is defined to correspond to that data group") is claimed at such a high level of generality that it lacks any meaningful limitation. See TLI, 823 F.3d at 612 ("[T]he functions . . . are described in vague terms without any meaningful limitations."); Two-Way Media Ltd. v. Comcast Cable Commc'ns, 874 F.3d 1329, 1337 (Fed. Cir. 2017) ("[R]outing information using result-based functional language does not sufficiently describe how to achieve these results in a non-abstract way."). Conventional reduce functions could "merg[e]... different intermediate data based on [a] key in common" between intermediate data. '610 patent, 9:12-17, 2:49-51, 2:64-67 ("Each reduce task 206a and 206b includes a sort and group-by-key task 210a and 210b."), Figs. 1, 2. The nebulous addition of processing in a manner corresponding to a data group is just an abstract idea. E.g., TLI, 823 F.3d at 610-12.

Even if claim 1 constituted an "enhancement" to MapReduce, the Federal Circuit has held that "[t]he different use of a mathematical calculation, even one that yields different or better results, does not render patent eligible subject matter." *In re Bd. of Trustees of Leland Stanford Junior Univ.*, 991 F.3d 1245, 1251 (Fed. Cir. 2021) ("That a specific or different combination of mathematical steps yields more accurate haplotype predictions than previously achievable under the prior art is not enough.") (citing *SAP*, 898 F.3d at 1163). This Court has concurred and found similar claims ineligible. *Health Discovery Corp. v. Intel Corp.*, 577 F. Supp. 3d 570, 584 (W.D. Tex. 2021) ("[M]erely produc[ing] data with improved quality relative to that produced by

conventional mathematical methods" is abstract). So have sister courts. *Uniloc USA, Inc. v. Rackspace Hosting, Inc.*, 18 F. Supp. 3d 831, 838 (E.D. Tex. 2013) ("Claim 1 merely constitutes an [unpatentable] improvement on the known method for processing . . . numbers.").

iv. Claim 1 Recites a Human-Practicable Process

Claim 1 additionally encompasses human activity. Figure 5, which corresponds to claim 1 and is described as "an example of the improved MapReduce," '610 patent, 8:14-16, is practicable by a human with a pen and paper. In Figure 5, an "Employee table 302" and "Department table 304" are joined "to generate the Employee and Department table 306." *Id.*, 8:15-24. Each input table is mapped in step 504 according to a map function that produces intermediate data 506. *Id.* The intermediate data is sorted based on key and then reduced by reduce functions 510 to create a table that lists key, employee name, and department. *Id.*, 8:25-37.

In this example, the Employee Table 302 has six records, the department table 304 has four, and the purported "different schemas" is one dissimilar field (i.e., EmpName vs. DeptName). *Id.*, 3:19-34, Figs. 3, 5. A human could partition, map, and reduce this data without a computer. *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) ("The conversion of BCD numerals . . . can be done mentally through use of the foregoing table."); *PersonalWeb*, 8 F.4th at 1316 ("These functions are mental processes that 'can be performed in the human mind' or 'using a pencil and paper."") (quoting *CyberSource*, 654 F.3d at 1372). Specifically, a human could map the inputs of Figure 5 by listing each key-value pair (e.g., "34, Smith" and "34, Clerical") (step 506), sorting the keys by odd and even numbers (step 508), and then reducing this data to merge the data by key (e.g., "34, Smith, Clerical") in step 512. As explained, the map and reduce functions are human inputs, so a human could elect how to map and reduce the input data and do so mentally. '610 patent, 6:8-10, 1:17-27 (same), 2:19-35 (same), 4:39-40 (same). A human could also track the "data groups" through the mapping and reducing simply by recording which input group the data derived from

using the "emp" and "dept" identifiers. *Erie*, 850 F.3d at 1327 ("[U]sing an index that includes tags and metafiles to locate the desired information[]... includes longstanding conduct that existed well before the advent of computers and the Internet.") (citations omitted); *BSG Tech LLC v. AutoZone, Inc.*, No. 2:16-cv-529, 2017 WL 2609066, at *4 (E.D. Tex. Mar. 30, 2017) ("[I]ndexing an item on a database" is a "'routine task that could be performed by a human") (citation omitted).

To the extent it is argued the claims allow processing large data sets, claim 1 does not mention the size of data sets. Nor does it require anything more than two tables a human could map and reduce using pen and paper. Moreover, processing more data does not distinguish the claims from an abstract idea. *Applied Predictive Techs., Inc. v. Marketdial, Inc.*, No. 2:19-cv-00496, 2020 WL 6940736, at *17 (D. Utah Nov. 25, 2020) ("[T]he...claim language far exceeds only situations involving 'big data.'"). While the claims require a distributed system, in the context of eligibility this only identifies the technological environment for implementing the abstract idea. *PersonalWeb*, 8 F.4th at 1316 ("[A] computer environment . . . doesn't transfigure an idea out of the realm of abstraction."). Using parallel computers also leverages computers for what they do best: performing computations. *SAP*, 898 F.3d at 1169-70.

v. Claim 1 Fails to Recite Significantly More Than the Abstract Idea

The remaining features of claim 1 do not add significantly more to the abstract idea under *Alice* step two. For example, performing map and reduce processing "by a distributed system" only uses computers to perform the abstract process. *See, e.g., TLI*, 823 F.3d at 613 ("[R]ecitation of concrete, tangible components is insufficient to confer patent eligibility to an otherwise abstract idea."); *Stanford*, 991 F.3d at 1250 (same). The patent moreover concedes that partitioning input data, providing each partition to a map function, mapping the data to produce intermediate data, and reducing the intermediate data to merge and produce output results was conventional in MapReduce. '610 patent, 1:6-27, 2:9-3:15, Figs. 1, 2. So is the arrangement and order of these

operations. *See id.* While R2's complaint asserts the claims "improve the speed, efficiency, effectiveness, and functionality of computer systems" (Compl. 1 ¶ 20), neither the Complaint nor the patent explains how this is so. *Erie*, 850 F.3d at 1329 ("[T]he claims do not sufficiently recite how the inclusion of [] tags or metadata leads to an improvement in computer database technology."). To the extent efficiency is improved, making an abstract process more efficient is not an eligible improvement to computers or computer networks. *See Secured Mail*, 873 F.3d at 910 ("[T]hat an identifier can be used to make a process more efficient . . . does not necessarily render an abstract idea less abstract."). Nor is an improved computer or network the focus of the claims. *SAP*, 898 F.3d at 1169-70 ("neither the claims nor the specification call for any parallel processing architectures different from those available in existing systems."). The focus instead is on an "improved mathematical analysis" and "the specification makes clear that off-the-shelf computer technology is usable to carry out the analysis." *Id.* at 1168. Claim 1 fails *Alice* step two.

vi. Eligibility Is Ripe for Determination at this Stage of the Case

No factual disputes or claim constructions preclude resolution of this motion. Eligibility is regularly determined at the pleadings stage. *E.g.*, *PersonalWeb*, 8 F.4th at 1314. Even accepting R2's allegations as true, the patent concedes the claims operate on generic computer hardware and the alleged improvement is an abstract data characterization, not an improvement in the operation of computers or computer networks. *SAP*, 898 F.3d at 1168. For claim construction, R2 has had multiple opportunities in prior litigations to present any constructions required to resolve eligibility. Indeed, in its latest *Markman* proceeding, R2 asserted "plain meaning" for all disputed terms and agreed to adopt the constructions issued from a prior *Markman* order. Ex. B at 8-17. R2 cannot now argue that a unique claim construction issue now exists that precludes dismissal.

V. CONCLUSION

For the foregoing reasons, the Court should grant Cloudera's motion to dismiss.

Dated: December 15, 2023 Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to the Federal Rules of Civil Procedure and Local Rule CV-5, I hereby certify that, on December 15, 2023, all counsel of record who have appeared in this case are being served with a copy of the foregoing via the Court's CM/ECF system.

/s/ Paige Arnette Amstutz
Paige Arnette Amstutz